AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously presented): An ignition device for internal combustion engine, containing:

- a main chamber designed for including a main combustible mixture, and fitted with a compression system of said mixture, and
- an igniter containing a precombustion chamber designed for receiving reactants and an ignition system of the reactants contained in the precombustion chamber, said precombustion chamber being defined by a precombustion chamber body having a head including at least one passageway, said head of the precombustion chamber body separating the precombustion chamber from the main chamber and communicating the precombustion chamber and the main chamber by dint of the passageway(s),

wherein the head is coated at least partially externally with a coating layer of at least one refractory material.

2. (Previously presented): Ignition device according to claim 1, wherein the precombustion chamber body is coated at least partially internally with a coating layer of at least one refractory material.

3. (Previously presented): An ignition device according to claim 1, wherein the passageway(s) are coated with a coating layer of at least one refractory material.

4. (Previously presented): An ignition device according to claim 1, wherein the coating layer is a nano-structured coating layer, the size of the grains being greater than or equal to 1 nm and smaller than 1 000 nm.

5. (Previously presented): An ignition device according to claim 1, wherein the coating layer consists either of a layer of at least one refractory material, or of two layers of at least one refractory material.

6. (Currently amended): An ignition device according to claim 1, wherein the refractory material(s) are selected among nitrides, borides, silicides, carbides, zirconium alloys, yttrium alloys, titanium alloys and boron alloys, oxides[[,]].

7. (Previously presented): An ignition device according to claim 1, wherein the refractory material(s) are selected among Al_2O_3, SiO_2, CeO_2, MnO_2, ZrO_2, ZrY, Zr and Y being in stoichiometric proportions or not, and TiB_2.

8. (Previously presented): An ignition device according to claim 1, wherein the thickness of the coating layer ranges between 0.5 and 100 μm.

9. (Previously presented): An ignition device according to claim 1, wherein the passageway(s) are of cylindrical shape and of diameter greater than 1 mm.

10. (Previously presented): An ignition device according to claim 1, wherein the passageway(s) are capable of preventing the propagation of a flame front while enabling the propagation of unstable compounds derived from the combustion of the reactants contained in the precombustion chamber, the compression system of the main chamber and the seeding of the main mixture with said unstable compounds enabling mass self-ignition of the main mixture.

11. (Previously presented): An ignition device according to claim 10, wherein said passageway(s) are in the form of a cylinder of diameter smaller than or equal to 1 mm.

12. (Previously presented): An ignition device according to claim 10, wherein said passageway(s) have a length smaller than or equal to the diameter thereof.

13. (Previously presented): An ignition device according to claim 10, wherein:

- the upper section of the precombustion chamber body is in the form of a cylinder of inner diameter Φ, and
- the head of the precombustion chamber body comprises several passageways, said passageways being circumscribed by a circular curve of diameter d_2 running through the centres of the outermost passageways, the ratio d_2/Φ being smaller than or equal to 0.5.

14. (Previously presented): An ignition device according to claim 13, wherein the ratio d_2/Φ is smaller than or equal to 1/3.

15. (Previously presented): An ignition device according to claim 13, wherein the centre of the curve running through the centres of the outermost passageways is situated on the axis symmetry of the precombustion chamber.

16. (Previously presented): An ignition device according to claim 13, wherein the centre of the curve running through the centres of the outermost passageways is situated at a distance d_3 from the axis symmetry of the precombustion chamber, said distance d_3 being equal to or greater than the quarter diameter Φ of the precombustion chamber.

17. (Previously presented): An igniter for internal combustion engine containing a precombustion chamber defined by a precombustion chamber body having a head fitted with at

least one passageway, the precombustion chamber being designed for including a combustible mixture, and an ignition system of the combustible mixture contained in the precombustion chamber, wherein the head is coated at least partially externally with a coating layer of at least one refractory material.

18. (Previously presented): An igniter according to claim 17, wherein the precombustion chamber body is coated at least partially internally with a coating layer of at least one refractory material.

19. (Previously presented): An igniter according to claim 17, wherein the passageway(s) are coated with a coating layer of at least one refractory material.

20. (Previously presented): An igniter according to claim 17, wherein the refractory material(s) are selected among nitrides, borides, silicides, carbides, zirconium alloys, yttrium alloys, titanium alloys and boron alloys, oxides.

21. (Previously presented): An igniter according to claim 20, wherein the refractory material(s) are selected among Al_2O_3, SiO_2, CeO_2, MnO_2, ZrO_2, ZrY, Zr and Y being in stoichiometric proportions or not, and TiB_2.

22. (Previously presented): An igniter according to claim 17, wherein the thickness of the coating layer ranges between 0.5 and 100 μm.

23. (Previously presented): An ignition device according to claim 6, wherein the refractory material(s) are selected among aluminium, titanium, iron, silicium, cerium, manganese and zirconium oxides, and zirconias having been subjected to the addition of at least one metal oxide selected among calcium, magnesium, yttrium, hafnium and rare earth oxides.

24. (Previously presented): An ignition device according to claim 7, wherein the refractory material(s) are selected among Al_2O_3, ZrY, Zr and Y being in stoichiometric proportions or not, and TiB_2.

25. (Previously presented): An ignition device according to claim 8, wherein the thickness of the coating layer ranges between 1 and 50 μm.

26. (Previously presented): An igniter according to claim 20, wherein the refractory material(s) are selected among aluminium, titanium, iron, silicium, cerium, manganese and zirconium oxides, and zirconias having been subjected to the addition of at least one metal oxide selected among calcium, magnesium, yttrium, hafnium and rare earth oxides.

27. (Previously presented): An igniter according to claim 21, wherein the refractory material(s) are selected among Al_2O_3, ZrY, Zr and Y being in stoichiometric proportions or not, and TiB_2.

28. (Previously presented): An igniter according to claim 22, wherein the thickness of the coating layer ranges between 1 and 50 μm.